APRIL/MAY 2025

23UFEL14 — FUNDAMENTALS OF ELECTRONICS (FC)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

Shanmuga Industries Arts & Science College T.V.Malai

1. State Coulomb's law.
2. Define electric intensity.
3. List types of resistors.
4. Give two main characteristics of variable resistors.
5. State the Lenz law of electromagnetic induction.
6. What is meant by mutual inductance?
7. Define dielectric constant.
8. What is meant by dielectric strength?
9. Give the details of intrinsic semiconductor.
10. Write down the role of an impurity in semiconductors.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Deduce the relation between electric intensity and electric potential.

Or

(b) Briefly explain the terms: Electric charges, electric intensity and electric potential.

12. (a) Explain the pattern of colour coding of resistors.

Or

(b) Briefly describe the testing method of resistance by multimeter.

13. (a) Briefly explain the types of inductors with necessary diagram.

Or

(b) Determine the inductance through series and parallel circuits.

14. (a) State the principle of capacitor and explain parallel plate capacitor.

Or

(b) Explicate the testing method of capacitor using multimeter.

Shanmuga Industries Arts & Science College T.V.Malai

15. (a) Describe the classification of solids by their conducting property.

Or

(b) Write down the basic concept of diode and transistor.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Derive the expression for electric intensity and potential of charged sphere on, in and out of the conductor.

17. Discuss the working mechanism of series and parallel connecting resistors with neat circuit diagram.

18. Calculate the energy stored in an inductor.

19. Describe the types of capacitors with construction details.

20. Explain the n-type and p-type semiconductors with energy band diagram.

———————